

26 November 1975

MEMORANDUM FOR THE RECORD

SUBJECT: Project ORACLE, Redwood City Preshipment
Acceptance Test

The Redwood City Preshipment Acceptance Test was held for seven successive days over the period 19 November through 25 November 1975. There were 20 test periods, all of them failed.

The test exercised both the software and hardware of the Mass Storage System in conjunction with a host computer, an IBM 370/155. The functions tested were mutually agreed to by AMPEX and the Agency on 3 July 1975. All individual tests but one were submitted in advance of the test period to AMPEX. The test set was delivered on 25 August 1975 and a revised set was delivered on 20 October 1975. The tests actually run during the period differed from those previously submitted to AMPEX only in that the data content of the files had been altered. Altering the data content had no impact on the functional aspects of the test, it simply precluded any kind of pre-arrangement on the part of AMPEX.

The acceptance test was conducted by the Agency, AMPEX personnel were present as observers. The Agency decided what functions were to be tested in a given period and in what sequence the individual tests were to execute. Agency personnel alone made the decision as to whether a test period was a failure or a success. Criteria used to determine success or failure of functional tests were based solely on the Mass Storage System Design (Specification) dated 19 March 1975. Whenever a test period ended because the system stopped processing, it was simply declared a failure. The Agency did not attempt to diagnose the cause as either hardware or software.

During each test period, the Agency had complete control of the system. At the end of a test period control was returned to AMPEX. After each test period, all events were reviewed, an evaluation of the test was made and then presented to AMPEX. Finally, a brief written summary of the test period was given to

AMPEX which served to notify them of the results. We also retained the blow-by-blow detail in the form of machine console logs, printer output from the host computer, and handwritten logs of events that took place during each test. A new test period would be started only when AMPEX declared the system was ready and returned control to the Agency. Any changes made by AMPEX were noted so that we could determine if any tests needed to be rerun.

It is important to note that the nature of all the failures were clear-cut. It was not necessary to make any intensive studies of the specifications to probe for subtle interpretations. The failures encountered during the tests were both hardware and software related. AMPEX did not question any of the test evaluations.

There were two serious types of failures. The first was the inability of the Mass Storage System to move some files from disk to the TBM Tape. These same files could be manipulated successfully from the host computer. The second failure was the inability of the system to move some files from TBM Tape to disk. The specification and the system design assumes this latter problem will occur once for each 2.5 billion characters of data. The test results showed a rate of 50 occurrences for each 2.5 billion characters.

Because of the short duration of the acceptance test and the limited number of functions being tested, the system should look better than it really is. Using this for a guideline and considering the poor quality revealed by the test, it is my judgement that AMPEX is not over half way done with the Mass Storage System.



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